



Document No. MTX-

ENVIRONMENTAL HEALTH & SAFETY
AND TRAINING REQUIREMENTS MATRIX
FOR THE SOUTHERN WASTE UNITS
REMEDICATION, EXCAVATION PHASE

NOVEMBER 26, 1997

REV 1

EMERGENCY PHONE NUMBER 648-6511
RADIO: "CONTROL"

Project: SOUTHERN WASTE UNITS REMEDIATION, EXCAVATION PHASE

The requirements listed in section 1 of this matrix apply to all activities for this project

ACTIVITY (TASKS)	HAZARD IDENTIFICATION	FREQUENCY & TYPE OF AIR AND PERSONNEL MONITORING REQUIRED	PERSONNEL PROTECTIVE EQUIPMENT	TRAINING REQUIREMENTS	MEDICAL MONITORING AND SURVEILLANCE REQUIREMENTS	ADMINISTRATIVE AND ENGINEERING CONTROL MEASURES	PERMITS	DECONTAMINATION AND DISPOSAL PROCEDURES
1. GENERAL PROJECT MINIMUM REQUIREMENTS (continued) NOTE: These General Requirements apply to all sections of this matrix	Personnel Injury / Site Safety		Leather palm gloves shall be worn for any manual activity	All personnel shall know to call 648-6511 or "Control" on the radio for emergency assistance		Radio communication or cellular phone available (at work area) at all times during work hours Fluor Daniel Fernald CM and Contractor supervision shall "walk your space" daily to ensure that no unidentified hazards exist in the work area Any hazard not corrected shall be flagged/ marked and reviewed during a safety meeting		
	Heat Stress	Conduct ambient temperature monitoring Physiological monitoring, as required	Ice vest may be used in hot conditions, as defined in heat stress plan	Safety briefing on heat stress	FDF Medical approval for working in hot environments	Contractors written Heat Stress Program (FDF Approved) Work/rest regimen as required Rest areas to be shaded Access to cooled drinking water Heavy equipment to have operator shaded from direct sun		
1. GENERAL PROJECT MINIMUM REQUIREMENTS (continued) NOTE: These General Requirements apply to all sections of this matrix	Cold Stress	Ambient Temperature Monitoring	Clothing suitable for cold weather	Safety Briefing on cold stress If temperature 32° F, special briefing on the use of PAPR's in cold weather (if PAPR's are worn)		When ambient temperature is below 20°F : define an approach to address cold stress identify warm up area(s) to be used work/rest regimen may be used Use of PAPR's in cold weather is restricted as follows: 0 to 15°F time is limited to 15 minutes continuous use < 0°F Use of PAPR's is prohibited except for emergency use.		

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	Housekeeping					Housekeeping shall be maintained at all times during the project Trash and materials shall be properly stored and secured Slipping hazards shall be corrected prior to start of work		Contractor shall ensure that area is free of any materials or debris that may be wind blown Contain & remove all trash/debris daily
	Chemical Exposures of chemicals/ products in support of project	Determined by FDF based on content & MSDS	As defined by MSDS, work plan, or work permit	Orientation on MSDS for materials used to support the construction project Respirator training and fit test (if required)	Medical approval for respirator use (if required)	Contractor to ensure personnel are aware of the hazards of the materials they are using, as defined on the MSDS. Notify FDF IH prior to use of chemicals / products	FDF Chemical/ Hazardous Work Permit (if required by FDF IH)	Follow instructions on product MSDS
	Construction site safety		All personnel within the active construction area are required to wear a (brightly colored) traffic safety vest.			Supervision shall "walk your space" daily to ensure that no unidentified hazards exist in the work area		
1. GENERAL PROJECT MINIMUM REQUIREMENTS (continued) NOTE: These General Requirements apply to all sections of this matrix	Manual lifting			Briefing on back safety		Personnel shall not lift more than 50 pounds or 35 pounds repetitive lift without assistance Lifting 35 lbs. Or greater - evaluate methods and capability of workers		

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	HOT Work- Flame cutting or Welding		Fire retardant clothing (NOMEX required) and gloves Leathers (as needed)	Fire watch training Review of MSDS		A trained fire watch shall be present with appropriate firefighting equipment Fire extinguisher Remove combustibles from area Contact FDF IH prior to performing hot work on stainless steel, painted, or coated metal for additional requirements	FDF Open Flame & Welding Permit	
	Fire Hazards					Fire extinguisher at all hazard locations Smoking shall only be permitted in designated location (signed & butt can) No smoking or open flame near combustible storage locations or re-fueling operations		
	Slips, Trips, and Falls from working on uneven terrain		Safety shoes shall have adequate tread to ensure traction.	Discuss with workers at safety meetings		Use caution when working on uneven terrain. If working on steep hill sides utilize fall protection		
1. GENERAL PROJECT MINIMUM REQUIREMENTS (continued) NOTE: These General Requirements apply to all sections of this matrix	Hand-arm vibration from power hand tools; e.g., jackhammer, chain saw		Anti vibration gloves shall be used during extended use of vibrating hand tools	Briefing for involved workers on vibration hazards		Personnel shall dress warmly when using power hand tools in cold weather Personnel shall take a 10 minute break from vibration for each hour a vibrating hand tool is operated		
	Noise	Contractor to perform monitoring as required	Hearing protection required, during the operation of power hand tools / equipment and heavy equipment that generate levels 85 dBA	Personnel exposed to an 8 hr TWA of 85 dBA or greater shall be in Contractor's Hearing Conservation Program (HCP)	Annual audiometric evaluation required for employees in Contractor's HCP	Post areas and/or equipment where exposure exceed limits Safety Meeting on use of hearing protection shall be held		

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	Night Work	Contractor H&S to conduct illumination survey	Traffic Safety Vest, made of high visibility material to be red or orange with reflective striping			Provide auxiliary lighting to maintain lighting levels (minimum of 3 foot-candles) at excavation work areas or other (minimum of 5 foot-candles) active locations with personnel working A lighting survey shall be performed prior to start of work Personnel working during dark hours shall carry a working flashlight, if likely to be in dark areas		
	Biological hazards (ticks, stinging or biting insects, chiggers, poison ivy, etc.)		Gather clothing and tape at ankles and wrist. Use insect repellent, as needed			Have work areas and paths to and from work areas mowed prior to mobilization if possible. Areas of tall grass/weeds shall not be accessed unless absolutely necessary		Check skin and head carefully for ticks after finishing work. Wash hands and face prior to breaks, lunch and end of shift Thorough washing is required if contact is made with poison ivy or other like plants
1. GENERAL PROJECT MINIMUM REQUIREMENTS (continued) NOTE: These General Requirements apply to all sections of this matrix	Contact with wild animals (snakes, deer, etc.)					Avoid contact with animals encountered in the work area Report any bites, scratches, etc. to FDF Medical immediately		

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	Severe Weather (Winds 25 mph or gusts 35 mph, lightening etc.)					<p>suspend outdoor operations utilizing: portable ladders, unsecured scaffolding (use of secured scaffolding will be based on the engineering design of the scaffolding), aerial lifts, drill rigs, other operations where personnel are working at unprotected heights (ex., work requiring personnel fall arrest systems)</p> <p>Requirements for crane use during high wind events is covered in the FDF Hoisting and Rigging Manual, RM-0045.</p> <p>When lightening is spotted, suspend all outdoor work and move to a safe location. Work will not resume for at least 30 minutes after the last lightening flash.</p>		
1. GENERAL PROJECT MINIMUM REQUIREMENTS (continued) NOTE: These General Requirements apply to all sections of this matrix	Overhead Electrical Hazards			FDF Lock and Tag if energy isolation is required.		<p>Equipment will not be operated within 10 feet of overhead power lines (50 kv or less, over 50 kv contact FDF Safety for minimum safe distance)</p> <p>For a vehicle in transit with it's structure lowered the minimum safe distance can be reduced to 4 feet. (50 kv or less, over 50 kv contact FDF Safety for minimum safe distance)</p> <p>For operation within these minimum safe distances energy isolation (lock and tag) will be required.</p>	FDF Outage Permit when energy isolation is required.	

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	Discovery of unknown/ uncharacterized materials that are not addressed in work plan or procedure (e.g. drums, cylinders etc.)					Stop work in that area, secure area of discovery and immediately notify FDF Safety, and FDF Construction Manager FDF RCT to perform a radiological survey of the discovery and evaluate for radiological hazards		Coordinate with FDF RCT for radiological survey of personnel, tools, and equipment within the area of the discovery (as required based on radiological survey) and decontaminate as necessary
2. VISITORS TO THE CONSTRUCTION AREA Note: Visitors shall be briefed each day.	Escorted Visitors-General industrial safety hazards		The minimum protection is: <ul style="list-style-type: none"> Safety glasses with rigid side shields or goggles (safety glasses ANSI Z87.1 listed) Hard hat (only ANSI Z89.1 listed) Sturdy leather work boots Traffic Safety Vest Wear any additional PPE as required by briefing for area of visit	Site Access Training Orientation to the Health and Safety Requirements Matrix - VISITORS SECTION ONLY and sign the VISITORS acknowledgment log Shall be briefed on the current work activity, associated hazards, and Fluor Daniel Fernald Work permit as it may apply to visit Unescorted visitors must complete site GET training	Personnel shall report all injuries to Fluor Daniel Fernald Medical Department, promptly	personnel that have completed the briefing on this entire Safety Matrix, have completed training and are aware of the current activities and hazards. <u>Unescorted visitors</u> must receive authorization from the HSO or CM prior to unescorted entry for each day or visit Visitors may not enter any exclusion zone or Radiologically Controlled area without proper Radiological training and approval from the FDF HSO Visitors include: <ul style="list-style-type: none"> Hands-off inspection Site tours / observation /non-routine visits /non-OSDF project personnel Visitors may not: <ul style="list-style-type: none"> Supervise any work activities Operate equipment or tools Perform any manual labor Perform survey /monitoring activities involving equipment or instrumentation 		

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3. USE OF VEHICLES AND HEAVY EQUIPMENT	Equipment operation		Seat belts at all times	Documented training required to operate any heavy equipment, with verification provided to FDF Construction Manager Operators will be briefed on the project traffic control plan and dust control plan prior to operating any heavy equipment		Back-up alarms required for all equipment Operator shall perform a maintenance/service check prior to use, daily and document Equipment shall only be use as intended by the manufacturer and within the defined limits Any equipment maintenance activity shall only be done in a designated area with an approved plan or procedure		
4. MOBILIZATION, SURVEY AREA, FLAG WELLS, RELOCATE FENCE	Personnel Injury					Construction Manager (or designee) and Contractor shall "walk your space" daily to ensure that no unidentified hazards exist in the work area Any hazard not corrected shall be flagged/ marked and reviewed during a safety meeting		
	Pulling existing fence posts - Backhoe use		Tag Line	Documented training required to operate any heavy equipment, with verification provided to FDF Construction Manager		Operator shall perform a maintenance/service check prior to use, daily and document Equipment shall only be use as intended by the manufacturer and within the defined limits		
	Personnel injury from handling fence materials		Leather palm gloves Long sleeve shirt			Verify that all electric fence circuits are de-energized before removing		
	Radiological site control	TLD Required, as posted.				Prior to the removal of any perimeter rope or fence demarcating a radiological area, Radiological Control shall be notified		

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4. MOBILIZATION, SURVEY AREA, FLAG WELLS, RELOCATE FENCE (Continued)	Striking an underground utility					FDF Construction Manager shall ensure that all surrounding utilities and any other hazards are clearly marked on a drawing and flagged in the field before start of excavation	FDF Penetration Permit(s)	
	Construction site control					Construction fence shall be properly erected around the construction area with caution signs to establish Construction Work Area Personnel shall ONLY enter construction area at defined entry points		
5. SET-UP TRAFFIC CONTROL & ACCESS AREAS	Heavy Equipment					Contractor shall ensure that traffic patterns to control equipment flow are established		
	Personnel Safety		All personnel within the active construction area are required to wear a (brightly colored) traffic safety vest.					

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6. ALL ELECTRICAL WORK	Electrical Shock			Involved personnel shall be trained to FDF OP-0004 Only electrically qualified personnel shall be permitted to be involved in this work		FDF Construction Manager shall approve the schedule for any tie-ins An Outage permit shall be completed (when required) with Facility Owner and FDF HSO involvement/approval FDF Energy Control procedure shall be followed for all utility isolation where personnel maybe working in the path of energy The lock and tagging out of the system includes: • Energy Isolation Plan • Independent verification Metal "fish" tape not permitted around energized electrical equipment	EIP Outage permit (May be required)	
7. ELEVATED WORK	Falls from ladders			Competent person for ladder inspection Body Harness and lanyard when working at unprotected heights of 6 Workers trained on safe use of ladders		Ladders shall be secured in place (tied off) during use Ladders must have current Inspection Sticker		
	Use of a man lift (JLG, Grove, etc)		All personnel shall be "tied-off" with a full body harness when in lift Tie-off is not required when working from scissors type platform where fall protection is provided by a top-rail, a mid-rail, and toe-board	Trained on proper use of fall protection equipment, Contractor shall verify training for each person Operator of man lift equipment shall be trained on it's operation and approved by the supervisor	Trained on proper use of fall protection equipment	Supervisor shall ensure that only trained personnel operate man lift equipment All lift units shall be inspected & operated as defined within the manufacturer's operation/safe manual Annual PM inspection shall be verified		

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7. ELEVATED WORK (Continued)	Personnel Injury- Falls		Body harness and lanyard		Trained on proper use of fall protection equipment	Fall protection is required at or above (6) foot Contractor shall provide the FDF CCM as to what method(s) will be used to provide 100% fall protection during each task. Contractor shall define method of controlling (barricade) the areas below the elevated work		
	Scaffolding Misuse or failure			Scaffolding trained, competent person Workers will be trained on safe use of scaffolding		Follow requirements within Part 8 for scaffolding inspection/tagging Competent person shall inspect before use Scaffold tags		
8. CLEARING, CHIPPING & STUMP GRINDING- All areas	Heavy equipment operation for clearing & grubbing		Goggles or face shield may be required, if dust/chipping causes wind blown eye hazards	Documented training required to operate any heavy equipment, with verify provided to FDF Construction Manager		Back-up alarms required for all equipment Operator shall perform a maintenance/service check prior to use, daily and document Equipment shall only be use as intended by the manufacturer and within the defined limits Any equipment maintenance activity shall only be done in a designated area with an approved plan or procedure		

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8. CLEARING, CHIPPING & STUMP GRINDING- All areas (Continued)	Power hand tools- Chain saws	Contractor to conduct Noise Monitoring as required.	Goggles or face shield Leather gloves or equal Leather or Kevlar Chaps Ear Plugs AND muffs (double hearing protection) Anti-vibration Gloves	Personnel shall be briefed on the manufacturers operation & safety requirements, prior to use		Supervision shall ensure that all equipment guards are in place prior to operation of tools		
	Use of Stump Grinder	Contractor to conduct Noise Monitoring as required.	Face Shield Ear Plugs AND Ear Muffs until FDF conducts noise monitoring to determine actual noise levels. Anti-Vibration Gloves	Personnel shall be briefed on the manufacturers operation & safety requirements, prior to use		Area shall be bannered or otherwise restricted to prevent employees from being struck by flying debris thrown by the stump grinder.		
	Injury from falling trees & dead branches					Personnel shall be kept clear of tree felling area Establish watch person if area is not visible to chain saw operator		
	Material (tree/wood/fencing materials) movement - personnel injury		Leather palm gloves, when handling materials			Limit personal lifting to 50 pounds, without assistance from co-workers. Lifting 35 lbs or greater- evaluate methods and capability of personnel		

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8. CLEARING, CHIPPING & STUMP GRINDING- All areas (Continued)	Fire hazards - Fuel					<p>All fuels shall be stored in listed safety cans in designated areas only (containers must be stored in a secondary container (ie tub)</p> <p>Fire extinguisher shall be stationed with the fueling operation</p>		
9. HANDLING OF PRESUMED ASBESTOS CONTAINING MATERIAL (PACM)	Exposure to asbestos fibers	<p>Contractor shall perform personal air monitoring in compliance with 29 CFR 1926.1101 including sampling necessary to complete initial exposure assessment</p> <p>FDF to conduct side-by-side personal air samples as determined by FDF Industrial Hygiene</p>	Disposable outer Anti-C's including gloves, and ½ Mask Respirator (for PACM work outside of a Radiological Area) with HEPA filters until the Contractor completes a negative exposure assessment in accordance with the OSHA Construction Asbestos Standard.	<p>Competent Person - 40 hour asbestos supervisor trained).</p> <p>Employees Handling PACM (Class III) - training as specified in 29 CFR 1926.1101 (k)(9)(viii). This training requirement can be met by attending FDF Asbestos O&M training (course # 1868) along with reviewing the asbestos work practices with the appropriate workers. Respiratory Fit Test for Asbestos every six months</p> <p>Workers who may come into contact with PACM, but are not required to handle PACM, must attend Class IV asbestos awareness training as specified in 29 CFR 1926.1101 (k)(9)(vi).</p>	Competent person and those employees assigned to handle PACM which result in exposure above the OSHA PEL for asbestos will participate in medical surveillance program.	<p>Use surfactant, lockdown, or encapsulant prior to handling PACM</p> <p>No visible emissions may occur when handling materials known to contain PACM</p> <p>Competent person shall make daily inspection of work area to ensure proper work practices area being used</p> <p>Contractor prepared PACM Handling Plan</p>	FDF Asbestos Work Permit	<p>Friable PACM will be wet down and/or encapsulated and double bagged or wrapped in two layers of 6 mil plastic and labeled with an asbestos warning label</p> <p>PACM will be staged in an area designated for PACM. Area will be bannered with asbestos warning tape</p> <p>HEPA Vacuum will be used to remove all dust and debris from disposable anti-c's prior to doffing.</p> <p>Anti-C's and cartridges will be disposed of as asbestos waste.</p> <p>Used respirators shall be segregated and returned to laundry for recycling in asbestos labeled bags.</p>

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10. INFILTRATION BARRIER PLACEMENT See ALL EXCAVATION/ EARTHWORK section for excavation hazards	Striking an underground utility					FDF CM shall ensure that all surrounding utilities and any other hazards are flagged in the field before start of excavation Hand dig within 3 feet of active utilities	FDF Penetration Permit	
	Soil Compacting	FDF to conduct noise monitoring (if required)	Foot guards (metatarsal) if exposed to "jumping-jack" like equipment compactors Hearing protection	FDF Confined Space training or equivalent is required if gasoline powered compactors are used in an excavations 4 feet in depth.		Use of a gasoline powered compacter inside an excavations - 4 feet in depth will cause the trench to be classified as a PERMIT - REQUIRED confined space. Additional exhaust/dilution ventilation will be required to prevent accumulation of exhaust gases (carbon monoxide)	FDF Confined Space Evaluation /Permit for entry into excavations> 4 feet in depth.	
11. WORKING NEAR WATER GREATER THAN 3 FOOT DEEP (Basins)	Drowning hazard		U.S. Coast Guard-approved life jacket or buoyant work vests.			Life vests required when within 5 feet of waters edge Inspect vest/jackets for defects Ring buoys with at least 90 feet of line shall be provided and readily available for emergency rescue operations At least one Lifesaving skiff shall be immediately available at each location while employees are working over or adjacent to water.		
12. INSTALL , TEST, AND OPERATE PRESSURE WASHER	Struck by heavy equipment & truck traffic during construction		All personnel within the active construction area are required to wear a (brightly colored) traffic safety vest.			Restrict pedestrians in this area Flaggers (with traffic safety vest) required for backing		

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Project: SOUTHERN WASTE UNITS REMEDIATION, EXCAVATION PHASE

The requirements listed in section 1 of this matrix apply to all activities for this project

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12. INSTALL , TEST, AND OPERATE PRESSURE WASHER (Continued)	Electrial Hazards	(See ALL ELECTRICAL WORK Section)	(See ALL ELECTRICAL WORK Section)	(See ALL ELECTRICAL WORK Section)	(See ALL ELECTRICAL WORK Section)	(See ALL ELECTRICAL WORK Section)	(See ALL ELECTRICAL WORK Section)	(See ALL ELECTRICAL WORK Section)
	Cuts and injection of water from use of Pressure Washer		Goggles or face shield, as required by manufacturer of water sprayer Leather Palm gloves	Trained on the use of the sprayer		Ensure no one is in the path of the water stream		
13. ALL EXCAVATION/ EARTHWORK ACTIVITIES INCLUDING - IMPACTED MATERIAL & LEAD EXCAVATION	Uranium contamination from excavated debris	TLD Breathing Zone (BZ) air sampler: 1) for 25% of personnel (minimum) in each work group 2) for each operator performing work within the radiological area	A single, full set of anti- contamination clothing (coveralls, gloves, booties, shoe covers, hood), minimum, for work in radiological areas: 1) cloth anti-c's are primary type of anti-c required (nomex for hot work). 2) disposable anti-c requirements: a) water resistant anti- c's required for wet work or cloth sweat through. b) single layer of papers not permitted for work in radiological areas (asbestos work). c) chemical resistant required for chemical work or for total water barrier 3) knee high rubber boots required as shoe covers for personnel working on foot in the field in areas where mud is above the ankles.	RAD Worker II training Respirator training 24 Hour Supervised field experience	Medical approval for respirator use Urinalysis- baseline, every 60 days & termination In-vivo exam- baseline, annual & termination	RCT to periodically monitor during performance of work within radiological areas and material handling activities All affected radiological areas will be posted as Contamination Areas Implement dust control, as per plan, to minimize airborne radioactive hazards	FDF RWP FDF Penetration Permit	Contain all wastes generated within the radiological area as "radioactive trash" Remove dirt and mud from excavation equipment for radiological survey to exit radiological area Personnel & materials monitoring required to exit radiological area

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13. ALL EXCAVATION/ EARTHWORK ACTIVITIES INCLUDING - IMPACTED MATERIAL & LEAD EXCAVATION (Continued)	Uranium contamination from excavated debris (continued)		4) hood may be replaced by skull cap except for those who are on foot in the field or if respirator is required. 5) equipment operators within enclosed cabs while in a Contamination Area, may operate at a reduced level of PPE than is described in this section. 6) Full face respirator required for Airborne Radioactivity Area and personnel within 50 feet of any active loading/unloading dumping activity - The extent and level of effort put forth in the implementation of dust control plan (proactive approach) will greatly reduce the need for respiratory protection 7) PAPRs required for hot work on contaminated materials					
	Use of back hoe, loaders & trucks (radiological control)					This equipment must remain within the Radiologically area until released by FDF RCT's Dust to be controlled according to FDF Approved Contractor Dust Suppression Plan.		Remove excessive dirt and mud from excavation equipment and be monitored for radiological contamination (as required) prior to leaving FEMP site

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13. ALL EXCAVATION/ EARTHWORK ACTIVITIES INCLUDING - IMPACTED MATERIAL & LEAD EXCAVATION (Continued)	Struck by heavy equipment & truck traffic		People working near heavy equipment shall wear traffic safety vests			Define walkways to limit exposure to truck traffic Flaggers required in congested locations		
	Excavation cave-in hazard, when personnel exposure is present			Competent Person training (OSHA 1926.651)		Competent person to be at work site or on-site and in communication during activities associated with excavation hazards Inactive excavations are to be physically barricaded and posted Persons shall only enter excavation after protection systems/sloping, as needed have been reviewed and approved by the Competent Person.	FDF Excavation Inspection Form FDF Inspection Log	
	Confined Spaces-hazardous atmospheres/expos ures					The Competent Person shall request FDF IH to verify the status of all excavations 4 feet in depth prior to personnel entry.	FDF Confined Space Evaluation/ Permit	
	Striking an underground utility	Contractor competent person shall verify and protect all utilities identified by FDF or installed by Contractor				FDF CCM shall ensure that all surrounding utilities and any other hazards are clearly marked on a drawing or flagged in the field before start of excavation Hand dig when within 3 feet of any know active utility	FDF Penetration Permit	

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13. ALL EXCAVATION/ EARTHWORK ACTIVITIES (continued)	Soil Compacting	FDF to conduct noise monitoring (if required)	Foot guards (metatarsal) if exposed to "jumping-jack" like equipment compactors Hearing protection	FDF Confined Space training or equivalent is required if gasoline powered compactors are used in a trenches 4 feet in depth.		Use of a gasoline powered compactor inside an excavation 4 feet in depth will cause the trench to be classified as a PERMIT - REQUIRED confined space. Additional exhaust/dilution ventilation will be required to prevent accumulation of exhaust gases (carbon monoxide)	FDF Confined Space Evaluation /Permit for entry into trenches > 4 feet in depth.	
	Nuisance dust, metals	Periodic checks of general area, as required by Contractor Dust Suppression Plan and OSHA /ACGIH		All employees assigned to the project will be briefed on the FDF approved Dust Suppression Plan		Contractor generated, FDF Approved Dust Suppression Plan shall be complied with to control dust		
	Dewatering activity					Refuel only when engine is cool and from a listed safety can		
	Use of back hoe, loaders & trucks					This equipment must remain within the Radiologically area until released by FDF RCT's		

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14. EXCAVATING WITHIN A RADIOLOGICAL HIGH CONTAMINATION AREA (>100K, removable)	Uranium contamination from excavated debris	100% of personnel shall wear Breathing Zone units (BZ's)	Two Full Sets of Anti- Cs: (disposable water resistant as outer layer, launderable nylons or cottons as inner layer) with 1 hood, 2 sets of booties, 2 sets of nitrile gloves, and shoe covers. Personnel working in areas with mud above the ankles are required to wear high top (calf or knee high) rubber boots. Respirator requirements will be based on actual field conditions and work being performed.			Wet down areas to minimize airborne hazards FDF RCT to perform radiological surveys during excavation work All equipment used in the area must remain within the Radiologically area until released by FDF RCT's. Area posted by FDF RCT as High Contamination Area with appropriate controls implemented Step-off pad with doffing area for outer layer of PPE must be established at exit points from any posted High Contamination Area. Set up decon line as appropriate.	RWP for High Contaminatio n Area work.	Remove excessive dirt and mud from excavation equipment and be monitored for radiological contamination (as required) prior to leaving area.
15. LEAD CONTAMINATED SOIL REMOVAL	Overexposure to Lead	Contractor to Collect Sample data to ensure workers are not exposed to lead above action levels. Based on previous sample data it is anticipated that by keeping nuisance dust levels below their actions levels lead levels will be kept below their action limits.		Haz Comm Training on Lead		Wash hands and face at breaks, before lunch, and at end of shift.	FDF Chem/Haz Permit	

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16. CONTINGENCY MATERIAL REMOVAL - Pressurized Containers	Rupture of Container					Stop Work Immediately, secure the area and contact FDF HSO, AEDO, RCT and Construction Manager. FDF will determine appropriate actions based on actual conditions.		
17. CONTINGENCY MATERIAL REMOVAL - Uranium Metal	Exposure to Ionizing Radiation					Stop Work Immediately, secure the area and contact FDF HSO, AEDO, RCT and Construction Manager. FDF will determine appropriate actions based on actual conditions (e.g dose rate readings).		
18. CONTINGENCY MATERIAL REMOVAL - Lead Acid Batteries	Exposure to corrosive materials (e.g skin burns)	To be determined in the Field.	Neoprene or Butyl Rubber Gloves (at least 12" cuff and >10 mil thickness) Saranex coveralls			Contact FDF HSO for pH readings and additional PPE requirements if required	FDF Chem/Haz Permit	Segregate, Double Wrap batteries in 6 mil poly sheeting/bags and disposition according to technical specification or as directed by FDF.
19. CONTINGENCY MATERIAL REMOVAL - Medical/Infectious Waste	Exposure to Bloodborne pathogens/ infectious waste.		IF WASTE IS NOT BAGGED OR BAGS ARE OPENED: Neoprene, nitrile or Butyl Rubber Gloves (at least 12" cuff and >10 mil thickness) Saranex coveralls Full face APR with HEPA Filters.	Bloodborne Pathogens Training.		Upon discovery contact FDF HSO prior to handling for additional PPE requirements if necessary.	FDF Chem/Haz Permit	Segregate, Double Wrap waste in 6 mil poly sheeting/bags and disposition according to technical specification or as directed by FDF.

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20. CONTINGENCY MATERIAL REMOVAL - Piping	Exposure to ionizing radiation or hazardous materials.					Stop Work Immediately, secure the area and contact FDF HSO, AEDO, RCT and Construction Manager. FDF will determine appropriate actions based on actual conditions (e.g dose rate readings, pH readings)		
21. SEEDING & MULCHING	Debris in Eyes		Face Shield if windy conditions are creating flying debris during seeding and mulching.			Avoiding seeding and mulching in excessively windy conditions or keep personnel upwind to avoid debris.		
22. WASH HEAVY EQUIPMENT	Manual cleaning		Leather palm gloves for handling sharp/heavy items Rubber gloves for washing activities			Equipment/vehicle shall have the engine off and brakes set prior to cleaning process All hydraulics shall be lowered or blocked before cleaning equipment		
	Water spray		Goggles or face shield, as required by manufacturer of the power spray equipment Rubber gloves for washing activities Rain suit - to keep mud off workers			Follow requirements of manufacturer of any power wash equipment, if used		
	Uranium Contamination (follow requirements of ALL EXCAVATION/ EARTHWORK ACTIVITIES to wash heavy equipment working within a Contamination Area					Control water runoff to prevent the spread of contamination		

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23. DUST CONTROL	Dusty conditions	Periodic checks of general area and as required by Contractor Dust Suppression Plan		All employees assigned to the project will be briefed on the FDF approved Dust Suppression Plan		Contractor generated, FDF Approved Dust Suppression Plan shall be complied with to control dust		
	Apply crusting agents- Chemical Exposures of chemicals	Determined by FDF based on content & MSDS	As defined by MSDS, work plan, or work permit	Brief personnel on MSDS requirements Respirator training and fit test (if required)	Medical approval for respirator use (if required)	Contractor to ensure personnel are aware of the hazards of the materials they are using, as defined on the MSDS. FDF IH and SWU Project to review & approve the materials and methods to be used	FDF Chemical/ Hazardous Work Permit (if required by FDF IH)	
	Use of FEMP site water systems					Use of the high pressure fire main system shall only be permitted with an approved use plan Back flow equipment as required by technical specifications for connections to FEMP water systems Pressure reduction to 50 PSIG is required for all supply hoses.		
23. DUST CONTROL (Continued)	Water supply hoses					All hoses shall be routed away from traffic areas or properly protected from accidental damage Hoses shall be pressure rated & tested as required for use		

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24. RADIOLOGICAL MONITORING / SURVEY ACTIVITIES OF EXCAVATED AREAS (or other similar activity)	Personnel Injury (being struck by heavy equipment)	As required by RWP or Safe Work Plan	Traffic safety vests			<p>RCTs or others performing similar activities shall:</p> <ul style="list-style-type: none"> • Coordinate entry into the "active" work area with FDF Construction management • Do Not perform monitoring activities within 50 feet of moving heavy equipment, unless an approved (by the FDF HSO) plan is in place <p>Monitoring activity in the immediate area of heavy equipment shall only be done after equipment is shut off and operator signals for the approach of the RCT</p>		
25. SURVEY EXCAVATED AREA TO CERTIFY CLEAN-UP LEVEL	<p><i>This work is to be performed by FDF personnel. Work direction and safety requirements for the operation/use of the survey equipment shall be documented separate from this document. Survey personnel shall follow all the requirements of this Safety Matrix as a minimum level of safety.</i></p> <p><i>The personnel & operation of this survey equipment is not part of this scope of work.</i></p>							
26. DEMOBILIZE WORK SITE	Remove tools, materials and heavy equipment from work area (scrapers, dozers, etc)					<p>FDF CCM shall ensure that all materials are cleaned up and construction related hazards are corrected during demobilizing activities</p> <p>FDF RCT to monitor equipment prior to leaving the FEMP site If equipment is determined to be contaminated, refer to WASH HEAVY EQUIPMENT Section of this matrix</p>		Remove excessive mud/dirt before leaving work site
	Complete Medical surveillance program				Exit Medical surveillance (including In-Vivo & In-Vitro requirements) shall be completed for personnel terminating work activity at the FEMP			
END OF MATRIX								

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